RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole 51-17-10

Log Event A

Borehole Information

Farm : TX	**Tank :** TX-117	**Site Number :** 299-W15-122
N-Coord : 42,082	**W-Coord :** 75,894	**TOC Elevation :** 669.92
Water Level, ft :	**Date Drilled :** 10/31/1970	

Casing Record

Type : Steel-welded	Thickness : 0.280	ID, in. : 6
Top Depth, ft. : 0	Bottom Depth, ft. : 100	

Borehole Notes:
According to the driller's records, this borehole was not perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of published thickness for schedule-40, 6-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately 0.3 ft above the tank farm grade.

Equipment Information

Logging System : 2	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1995	**Calibration Reference :** GJPO-HAN-3	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 1/26/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 98.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 23.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 1/29/1996	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 24.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Borehole 51-17-10

Log Event A

Analysis Information

Analyst : S.D. Barry

Data Processing Reference : P-GJPO-1787 Analysis Date : 1/8/1997

Analysis Notes :

This borehole was logged in two log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137, Co-60, and Eu-154 were detected in this borehole. The presence of Cs-137 contamination was measured continuously from the ground surface to about 52 ft, intermittently from 52 to 62.5 ft, and semi-continuously from 62.5 to 98.5 ft (the total depth logged). The maximum Cs-137 concentration was 412.8 pCi/g at 7 ft. Co-60 was detected between 5 and 7 ft with a maximum concentration of 2.5 pCi/g. Eu-154 was measured between 4.5 and 8 ft with a maximum concentration of 42.7 pCi/g.

Between about 44 and 48 ft, the K-40 and Th-232 log plots show a region of lower concentration values. Also in this interval, the U-238 log plot shows a region of higher concentrations values. Beginning at about 96 ft, the Th-232 and U-238 concentration values start to increase.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank TX-117.

Log Plot Notes:

Separate log plots show the man-made (Cs-137, Co-60, and Eu-154) and the naturally occurring radionuclides (KUT). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A time-sequence plot from 1975 to 1989 was created from historical gross gamma log data and is included with the SGLS log plots.